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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,342	02/11/2004	Guy Peter Bryan-Brown	124-1062	8551
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NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714			EXAMINER SCHECHTER, ANDREW M	
			ART UNIT 2871	PAPER NUMBER

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/775,342

Applicant(s)

BRYAN-BROWN ET AL. 

Examiner

Andrew Schechter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 January 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17-36 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 17-36 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 11 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☒ Certified copies of the priority documents have been received in Application No. 09/043,788.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/11/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Specification*

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### *Double Patenting*

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 17-19 and 36 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6, 24, and 40 of U.S. Patent No. 6,249,332. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 6, 24, and 40 each anticipate the present claims 17-19 and 36.
4. Claims 20-25 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 39 of U.S. Patent No. 6,249,332

as applied above to claims 17-19, in view of *Funada et al.*, U.S. Patent No. 4,486,760, *Tsuboyama et al.*, U.S. Patent No. 4,775,225, and *Yamazaki et al.*, U.S. Patent No. 4,973,138.

The additional limitations of claims 20-25 would have been obvious to one of ordinary skill in the art at the time of the invention over these references, as applied below under 35 U.S.C. 103 [see below].

5. Claims 32, 34, and 35 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 16-18 and 22 of U.S. Patent No. 6,456,348. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 16-18 and 22 each anticipate claim 32.

The examiner takes official notice that positive and negative dielectric anisotropy are well known in LCDs; using either would have been obvious to one of ordinary skill in the art at the time of the invention depending on the particular type of device which was preferred. Claims 34 and 35 are therefore rejected as well.

6. Claim 26 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 39 of U.S. Patent No. 6,456,348. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 39 anticipates the present claim 26.

7. Claims 27-31 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 39 of U.S. Patent No. 6,456,348

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as applied above to claim 26, in view of *Tsuboyama et al.*, U.S. Patent No. 4,775,225 and *Wenz et al.*, U.S. Patent No. 5,268,782.

The additional limitations of claims 27-29 would have been obvious to one of ordinary skill in the art at the time of the invention over *Tsuboyama*, as applied below under 35 U.S.C. 103 [see below]. Embossing is taught by *Wenz*; it would have been obvious to make pillars by this method motivated by the efficiency of this production technique, so claim 30 is rejected. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the two stable liquid crystal configurations to be optically distinguishable, in order to have an optically functioning device, so claim 31 is also rejected.

8. Claim 26-31 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,714,273 in view of *Tsuboyama et al.*, U.S. Patent No. 4,775,225 and *Wenz et al.*, U.S. Patent No. 5,268,782.

The present claim 26 recites the additional limitation “wherein said patterned surface profile comprises at least one pillar”, which is not recited in claim 1. *Tsuboyama* discloses a patterned surface profile comprising a pillar, and it would have been obvious to one of ordinary skill in the art at the time of the invention to do so, motivated by the desire to better control the cell gap. Claim 26 is therefore rejected. The height of *Tsuboyama*’s pillars is given as 1  $\mu\text{m}$  [col. 13, line 35] and the width of such pillars was in the range 5-50  $\mu\text{m}$  or greater than 50  $\mu\text{m}$  [see Table 1], so claims 27-29 are also rejected. Embossing is taught by *Wenz*; it would have been obvious to make pillars by

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this method motivated by the efficiency of this production technique, so claim 30 is rejected. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the two stable liquid crystal configurations to be optically distinguishable, in order to have an optically functioning device, so claim 31 is also rejected.

9. Claims 32, 34, and 35 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 11 of U.S. Patent No. 6,714,273. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 11 anticipates claim 32.

The examiner takes official notice that positive and negative dielectric anisotropy are well known in LCDs; using either would have been obvious to one of ordinary skill in the art at the time of the invention depending on the particular type of device which was preferred. Claims 34 and 35 are therefore rejected as well.

### ***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 17-19 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by *Nobili et al.*, "Surface Walls on a Bistable Anchoring of Nematic Liquid Crystals", J. Phys. II France 5 (April 1995).

*Nobili* discloses [see p. 535, Fig. 5b, for instance] a bistable nematic liquid crystal device comprising a first cell wall [bottom] and a second cell wall [top] enclosing a layer of liquid crystal material, wherein said first cell wall has a first surface treated to provide a bistable pretilt to molecules of liquid crystal material and said second cell wall has a first surface treated to provide monostable alignment to molecules of liquid crystal material, wherein said bistable nematic liquid crystal device provides two stable and optically distinguishable liquid crystal configurations [at B and B', left and right of Fig. 5b, for instance]. Claim 17 is therefore anticipated.

The first surface of the second cell wall has a homeotropic surface treatment, so claim 18 is also anticipated. The liquid crystal material is nematic, so claim 19 is also anticipated. The first cell wall's first surface is treated to provide two different pretilt angles, so claim 36 is also anticipated.

12. Claim 32 is rejected under 35 U.S.C. 102(b) as being anticipated by *Tsuda et al.*, U.S. Patent No. 5,280,375.

*Tsuda* discloses [see Fig. 1] an LCD providing first and second stable liquid crystal configurations [right and left of Fig. 1] which are optically distinguishable, a cell having a cell wall with a first surface to provide two different pretilt angles [4, 6] in the same azimuthal plane, wherein the first stable configuration is twisted [see Fig. 4]. Claim 32 is therefore anticipated.

13. Claims 32, 34, and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by *Li et al.*, U.S. Patent No. 5,831,700.

*Li* discloses [see Fig. 1] an LCD providing first and second stable liquid crystal configurations [right and left of Fig. 1] which are optically distinguishable, a cell having a cell wall with a first surface to provide two different pretilt angles in the same azimuthal plane, wherein the first stable configuration is twisted. Claim 32 is therefore anticipated.

*Li* discloses using either positive or negative dielectric anisotropy liquid crystal [col. 7, lines 46-56], so claims 34 and 35 are also anticipated.

14. Claims 32-35 are rejected under 35 U.S.C. 102(b) as being anticipated by *Boyd et al.*, U.S. Patent No. 4,333,708.

*Boyd* discloses [see Fig. 6] an LCD with first and second stable liquid crystal configurations, optically distinguishable, a cell with cell wall having first surface to provide two different pretilt angles [1093, 1094] in the same azimuthal plane, wherein the first configuration is twisted [on the left]. Claim 32 is therefore anticipated.

The second configuration is non-twisted [in the middle], so claim 33 is also anticipated. The liquid crystal material used can exhibit both positive and negative anisotropy [col. 2, lines 58-64], so claims 34 and 35 are also anticipated.

### ***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the



invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Nobili et al.*, "Surface Walls on a Bistable Anchoring of Nematic Liquid Crystals", J. Phys. II France 5 (April 1995) as applied above, in view of *Funada et al.*, U.S. Patent No. 4,486,760.

*Nobili* may or may not disclose using long pitch cholesteric liquid crystal material in the bistable nematic device. *Funada* teaches that the twisted nematic liquid crystal layer in an analogous device can be either a nematic liquid crystal or a long pitch cholesteric liquid crystal [col. 2, lines 12-14]. This is evidence that the two were considered art-recognized equivalents as choices for the liquid crystal layer in such devices. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a long pitch cholesteric material, motivated by the art-recognized equivalence of the two options. Claim 20 is therefore unpatentable.

17. Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nobili et al.*, "Surface Walls on a Bistable Anchoring of Nematic Liquid Crystals", J. Phys. II France 5 (April 1995) as applied above, in view of *Tsuboyama et al.*, U.S. Patent No. 4,775,225.

*Nobili* may or may not disclose having pillars on the first surface of the first cell wall. *Tsuboyama* discloses having such pillars [307] in an analogous device. It would have been obvious to one of ordinary skill in the art at the time of the invention to have such pillars, motivated by *Tsuboyama's* teaching that such spacers maintain a cell gap

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and provide good bistability free of orientation defects [col. 2, lines 34-38]. Claim 21 is therefore unpatentable.

The height of *Tsuboyama's* pillars is given as 1  $\mu\text{m}$  [col. 13, line 35] and the width of such pillars was in the range 5-50  $\mu\text{m}$  or greater than 50  $\mu\text{m}$  [see Table 1], so claims 22-24 are also unpatentable.

18. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Nobili et al.*, "Surface Walls on a Bistable Anchoring of Nematic Liquid Crystals", J. Phys. II France 5 (April 1995) in view of *Tsuboyama et al.*, U.S. Patent No. 4,775,225 as applied above, and further in view of *Yamazaki et al.*, U.S. Patent No. 4,973,138.

*Tsuboyama* does not disclose also dispersing beads in the liquid crystal. *Yamazaki* discloses having both pillars [5] and beads [4]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have both pillars and beads, motivated by *Yamazaki's* teaching that the pillars prevent the gap distance from expanding and the beads prevent the gap distance from contracting [abstract]; in other words, using both pillars and beads more carefully controls the gap spacing and thereby improves the display quality. Claim 25 is therefore unpatentable.

19. Claims 26-29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Tsuda et al.*, U.S. Patent No. 5,280,375 in view of *Tsuboyama et al.*, U.S. Patent No. 4,775,225.

*Tsuda* discloses [see Fig. 1] a cell wall for a bistable nematic liquid crystal device having a first surface with a patterned surface profile [5, 7] to provide to different pretilt

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angles [4, 6] in the same azimuthal plane to molecules of liquid crystal material. *Tsuda* does not disclose at least one pillar.

*Tsuboyama* discloses having such pillars [307] in an analogous device. It would have been obvious to one of ordinary skill in the art at the time of the invention to have such pillars, motivated by *Tsuboyama*'s teaching that such spacers maintain a cell gap and provide good bistability free of orientation defects [col. 2, lines 34-38]. Claim 26 is therefore unpatentable.

The height of *Tsuboyama*'s pillars is given as 1  $\mu\text{m}$  [col. 13, line 35] and the width of such pillars was in the range 5-50  $\mu\text{m}$  or greater than 50  $\mu\text{m}$  [see Table 1], so claims 27-29 are also unpatentable.

The two configurations are optically distinguishable, so claim 31 is also unpatentable.

20. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Tsuda et al.*, U.S. Patent No. 5,280,375 in view of *Tsuboyama et al.*, U.S. Patent No. 4,775,225 and *Wenz et al.*, U.S. Patent No. 5,268,782.

*Wenz* discloses embossing such microstructures. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so, motivated by the efficiency of mass production using embossing to produce such pillars. Claim 30 is therefore unpatentable. Also, note that this limitation is a product-by-process limitation, where the scope is limited only by the structure, not the steps performed, so claim 30 would be unpatentable even without the teaching of *Wenz* because the structure is not affected by the process limitation. Claim 30 is therefore unpatentable.

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21. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Tsuda et al.*, U.S. Patent No. 5,280,375 as applied above.

*Tsuda* is silent on using positive and/or negative dielectric anisotropy material. The examiner takes official notice that positive and negative dielectric anisotropy are well known in LCDs [for instance, see *Li et al.*, U.S. Patent No. 5,831,700]; the two are considered to be art-recognized equivalents in this regard; so using either would have been obvious to one of ordinary skill in the art at the time of the invention, depending on the particular type of device which was preferred. Claims 34 and 35 are therefore unpatentable as well.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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2 April 2005